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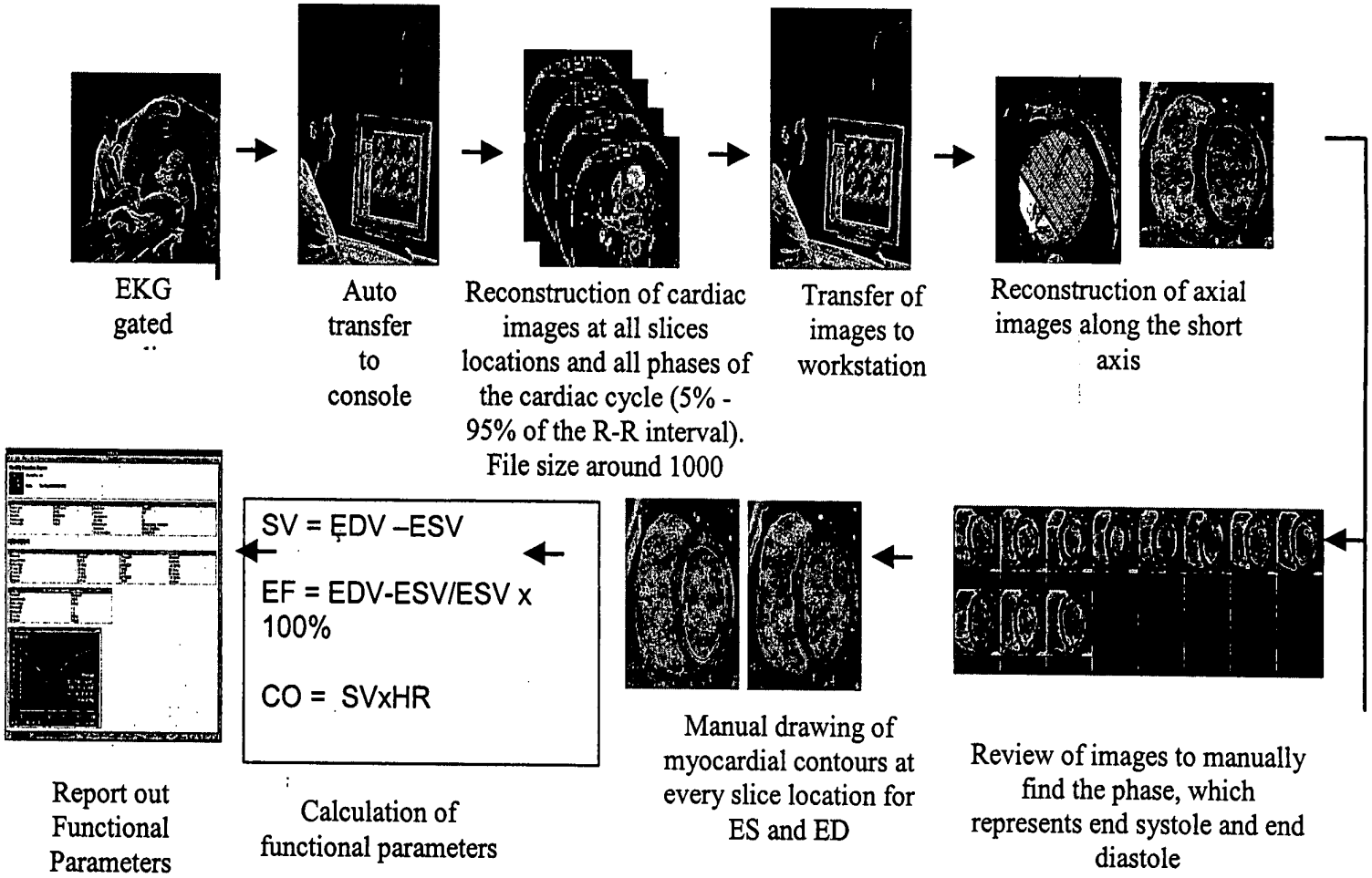


Figure 1. Typical workflow for current methodologies used to calculate LV functional parameters.

Prior Art

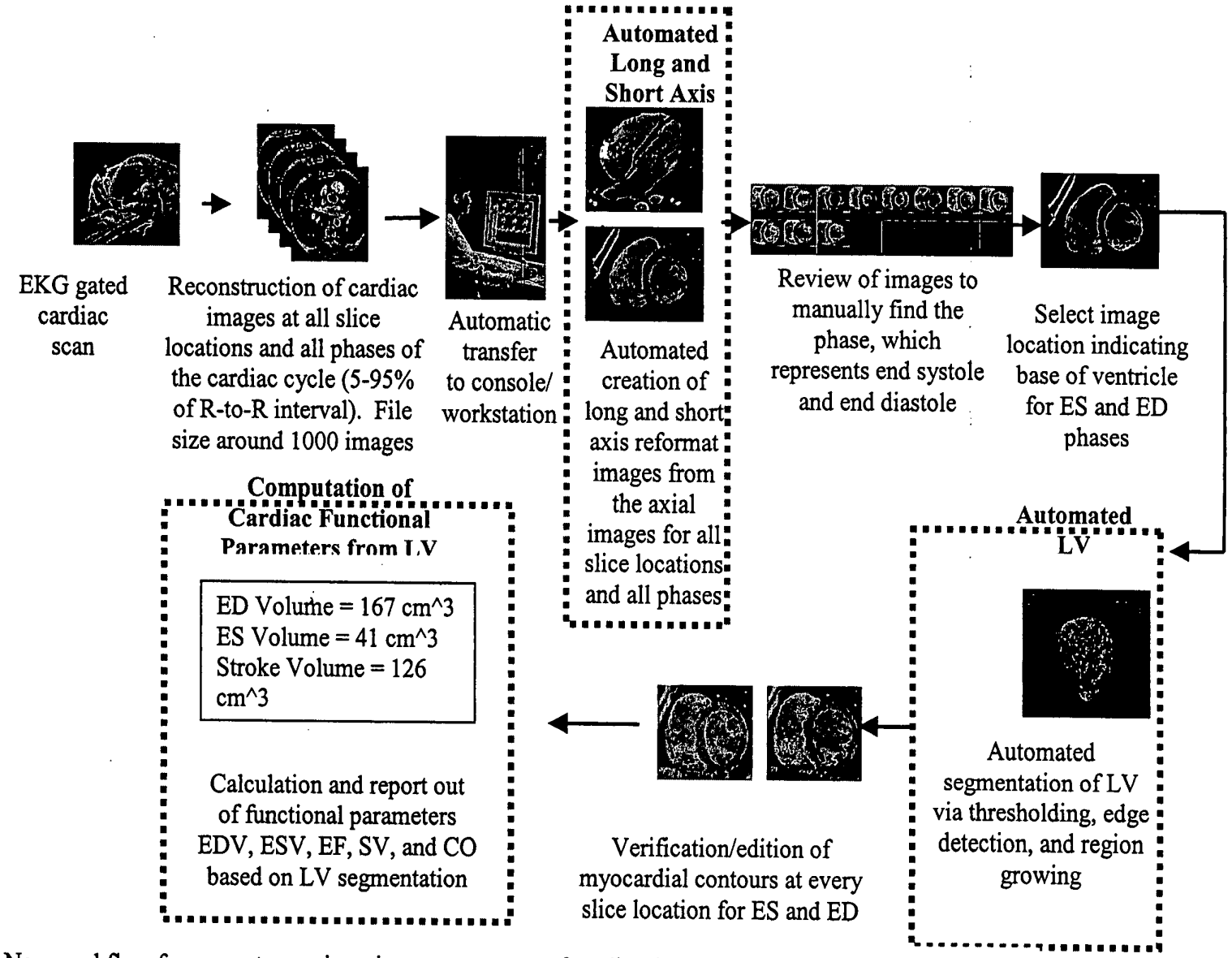
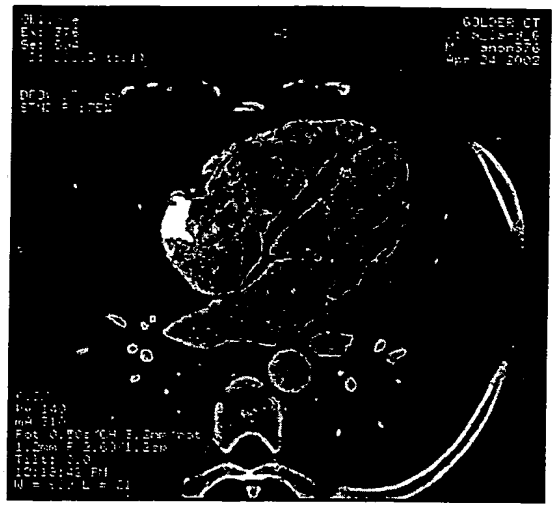
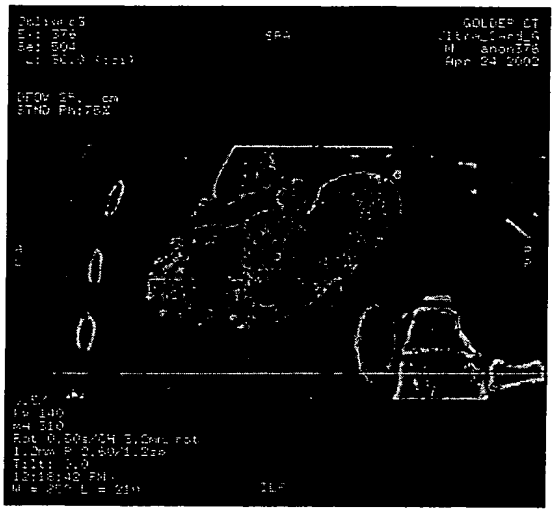


Figure 2. New workflow for accurate non-invasive measurement of cardiac function using tomographic images

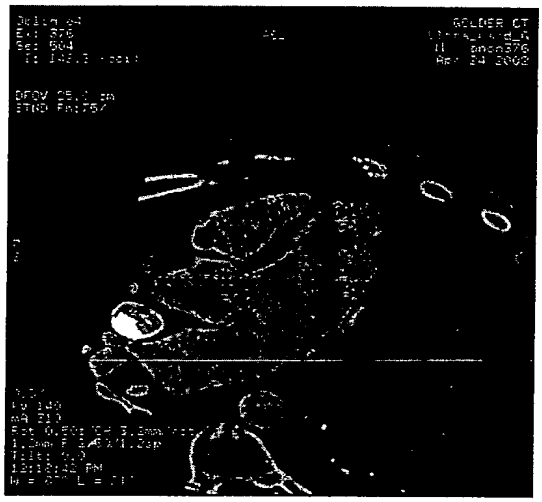
Short Axis View



Horizontal Long Axis View
(Four-Chamber View)



Ventricle Long Axis
(Two-Chamber View)



LV Inflow/Outflow Tract View

Figure 3. Representative Short Axis, Vertical Long Axis, Horizontal Long Axis, and Left Ventricle Inflow/Outflow Tract views from a cardiac CT Exam

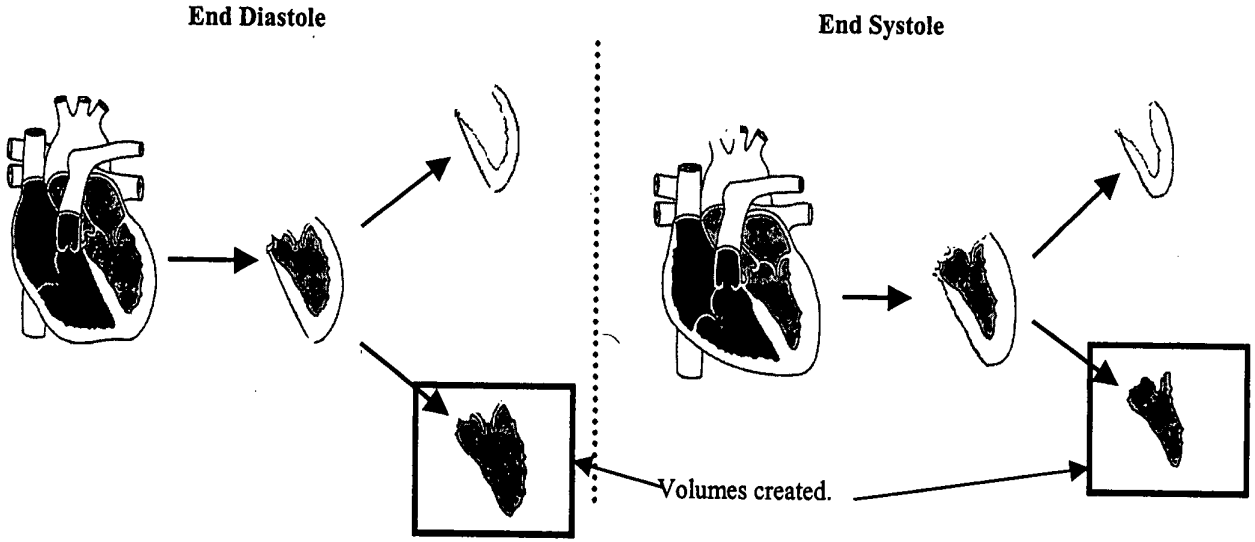


Figure 4. Representation of delineation of the LV from surrounding anatomy via thresholding, edge detection, and region growing algorithms. This is done at both end diastole and end systole to segment the contrast from the ventricular walls and ventricular walls from the contrast.

Figure 5. An optimal combination of advanced algorithms such as thresholding, morphological and connectivity tools, edge detection, and region growing are used to segment the contrast within the ventricle from the myocardium.

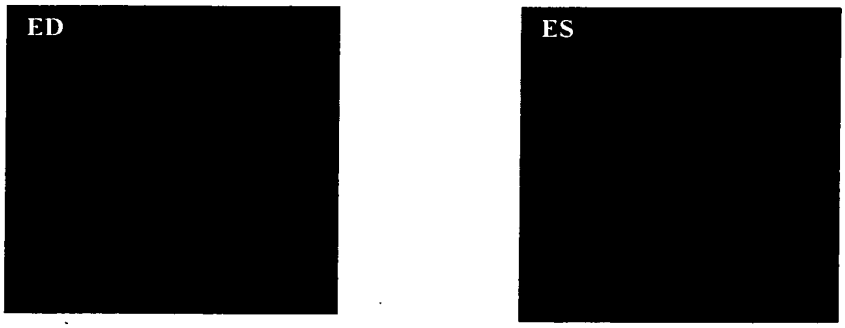


Figure 6. Examples of 3D models of the LV at both end systole and end diastole. By measuring the volume of these models, EDV, ESV, SV, EF, and CO are calculated.

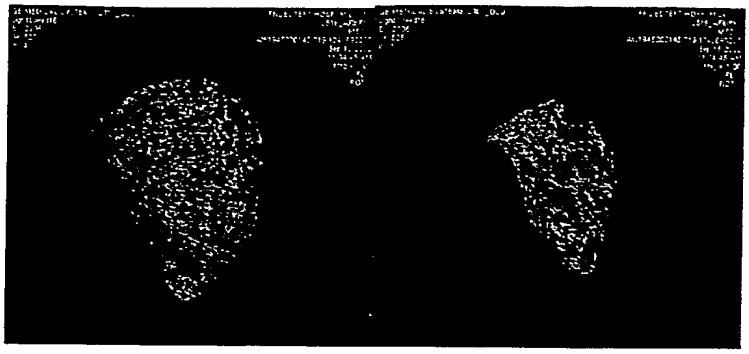


Figure 7. Volume rendering of the LV contrast at both end diastole and end systole.

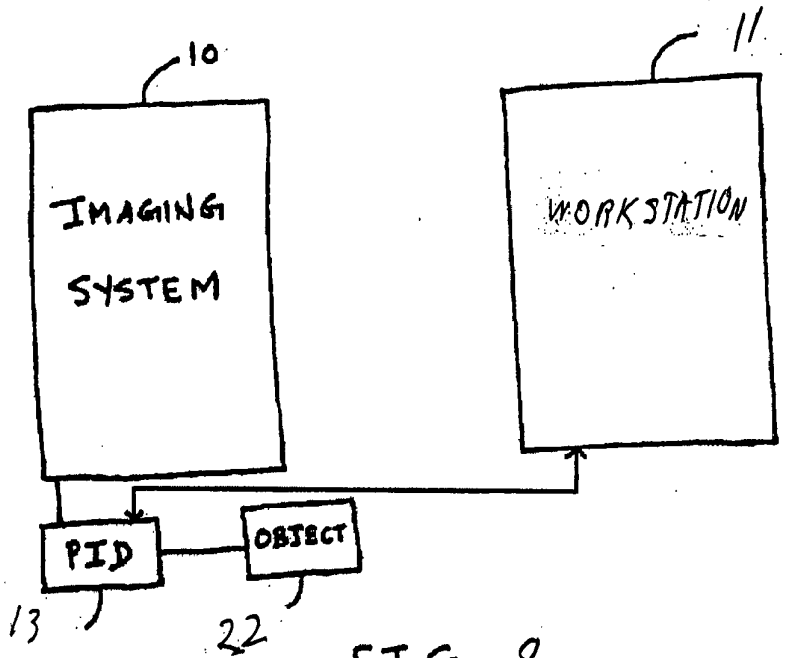


FIG. 8

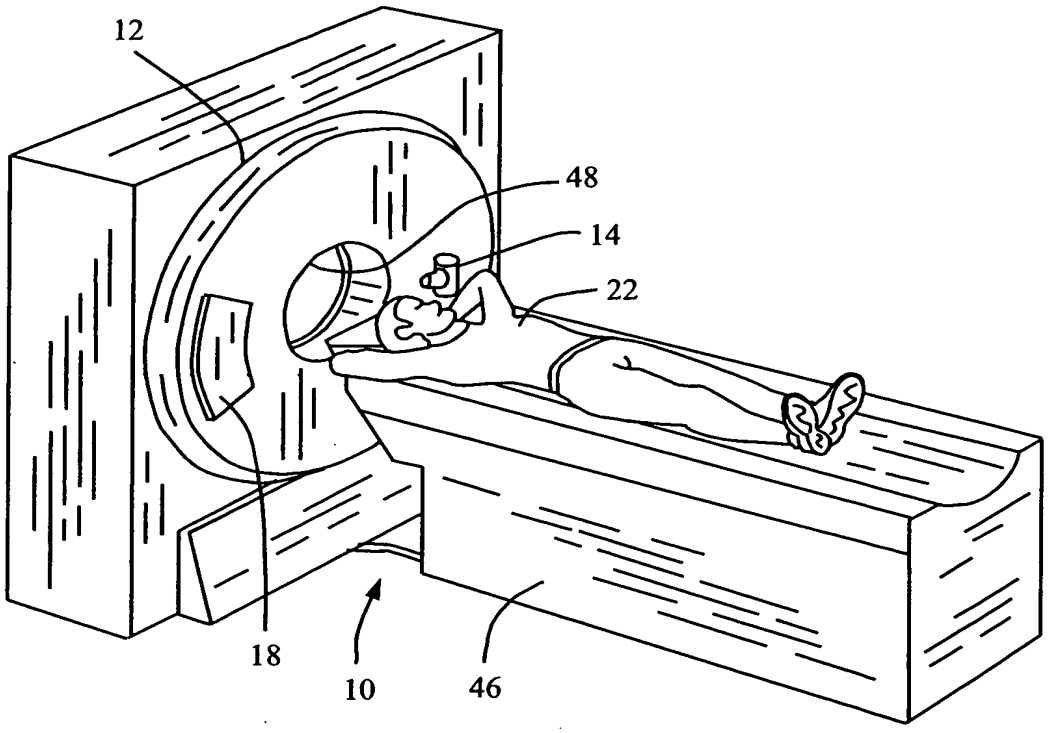

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FIG. 9

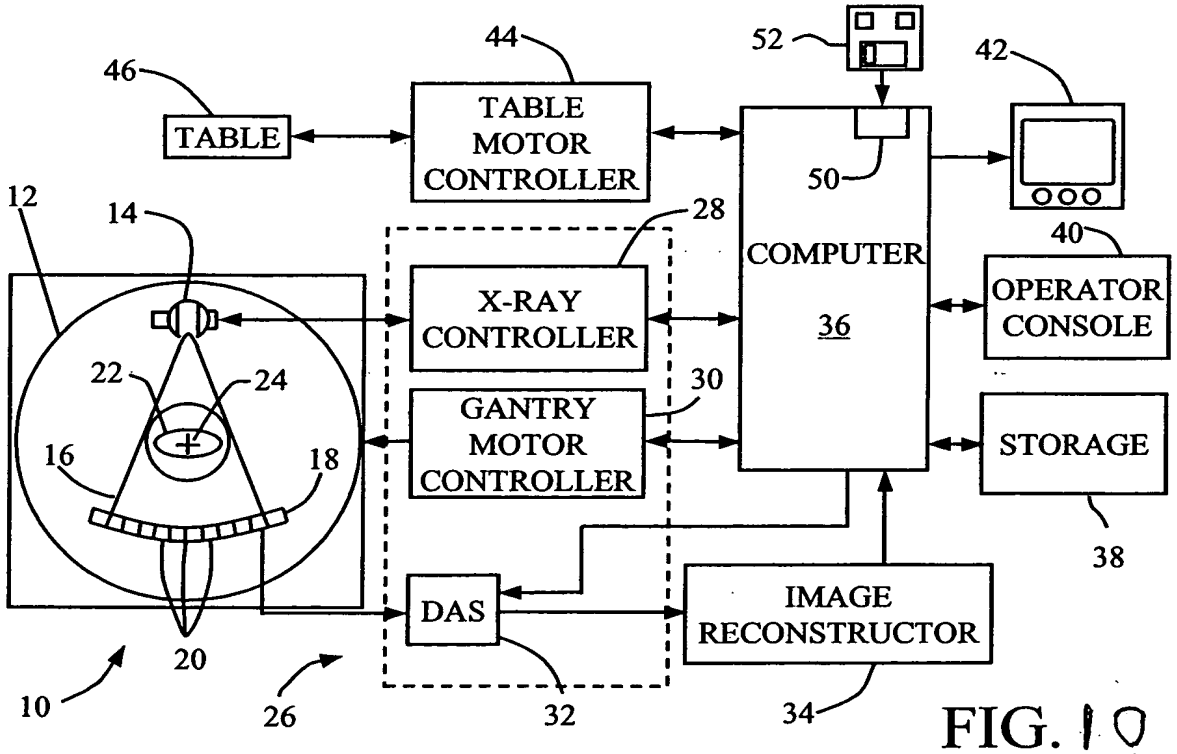
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TABLE
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TABLE MOTOR CONTROLLER
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42
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COMPUTER
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OPERATOR CONSOLE
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X-RAY CONTROLLER
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GANTRY MOTOR CONTROLLER
STORAGE
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DAS
IMAGE RECONSTRUCTOR
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FIG. 10